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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,293	12/15/2003	Michael Andrew de Rooij	132853	1786
6147 7590 02/05/2008 GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			EXAMINER HALL, ASHA J	
			ART UNIT 1795	PAPER NUMBER
			NOTIFICATION DATE 02/05/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ldocket@crd.ge.com  
rosssr@crd.ge.com  
parkskl@crd.ge.com

## Office Action Summary

Application No.

10/734,293

Applicant(s)

DE ROOIJ ET AL.

Examiner

Asha Hall

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 10, 2008 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6-9, and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ropp et al. (US 6,429,546).

With respect to claims 1, 6, and 11, Ropp et al. discloses a photovoltaic power converter system (col. 1; lines: 20-21) comprising:

- a photovoltaic array (102); an inverter/included in the power conditioning unit (PCU) (104) (col. 2; lines: 54-55) electrically coupled to said photovoltaic array (102) to an output current to a mains grid supply voltage (108) as shown in Figure 1;

- and a controller/ included in the power conditioning unit (PCU) (104) (col. 2; lines: 54-55) including a first circuit/phase locked loop (PLL) (col. 8; lines: 2-4) coupled to receive a load current (114) and filter out a harmonic component from the load current to measure a load harmonic current (col. 7; lines: 63-64);
- a second circuit/phase comparator unit (PCU) (146) for determining an amplitude (depicted in Figure 5 of voltage vs. time the amplitude is the maximum and minimum points of the curve) of an injectable/input current available from the photovoltaic array(102) to generate a fundamental sinusoidal current reference that is phased locked (col. 8; lines: 2-4 with the mains grid supply (108) as shown in Figure 1
- a third circuit/phase jump detection (PJD) for combining the harmonic current and the fundamental sinusoidal current reference to generate a command output signal (col. 8; lines: 13-15)
- wherein the controller (104) is configured to generate an error signal based on a difference between the command output signal and the output current (col. 8; lines: 31-35), and
- current wherein the controller(104) is configured to process the error signal/stop signal and to generate a switching signal for actuating a switching gate/phase lock loop of said inverter to compensate for the load harmonic current when said

inverter injects the output current to the mains grid supply voltage(108)/

islanding is prevented (col. 8; lines: 31-35)

As to claims 2, 7, and 12, Ropp et al. discloses the photovoltaic power converter system of claims 1, 6, and 11 respectively, wherein said first circuit/PLL (140) comprises a notch filter(142) configured to pass harmonics present in said load current (col. 8; lines:3-5).

With respect to claims 3, 8, and 13, Ropp et al. discloses the photovoltaic power converter system of claims 1, 6, and 11 respectively, wherein said second circuit comprises a phase lock loop (PLL) coupled to receive said supply voltage and generate a sinusoid (Figure 5 & col. 8; lines: 9-11) corresponding to the frequency of said supply voltage/voltage control oscillator(VCO) (col. 8; lines: 16-20 & Figure 5).

With respect to claims 4, 9, and 14, Ropp et al. discloses the photovoltaic power converter system of claim 3, 8, and 13 respectively, wherein said second circuit further comprises a mixer configured to receive said sinusoid (col. 6; lines: 63-65) and a signal indicative of the magnitude of current available from the photovoltaic array (col. 7; lines: 5-7) as shown in Figure 1 for generating said fundamental reference (col. 1; lines: 63-67).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ropp et al. (US Patent 6,429,546) as applied to the above claims 1 and 6 respectively, and in view of Hopkins ("Partitioning Digitally Programmable Power-Control for Applications to Ballasts").

In regard to claims 5 and 10, Ropp et al. discloses photovoltaic power converter system of claims 1 and 6 respectively, but fails to disclose wherein said controller is selected from the group consisting of a micro-controller, a Field Programmable Gate Array device and an Application Specific Integrated Circuit device.

Hopkins discusses various methods, including digital methods, for controlling power electronic circuits (introduction, first sentence). In the fourth paragraph of the introduction, Hopkins explains that the use of analog ASIC's to control power in such systems can lower system costs. It would have been obvious to one of ordinary skill in the art at the time of the invention to fashion the power controller of the modified device of Steigerwald into an ASIC in the manner taught by Hopkins in order to lower system costs.

### ***Response to Arguments***

#### **Claim Rejections under 35 USC 103(a)**

6. All arguments directed toward the amended claims 1, 6, and 11, and all its dependants required new grounds of rejection presented above.


**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asha Hall whose telephone number is 571-272-9812. The examiner can normally be reached on Monday-Thursday 8:30-7:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJH



ALEXA D. NECKEL  
SUPERVISORY PATENT EXAMINER